

Studies on Victorian bryophytes 10. The genus *Mesochaete* Lindb.

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Abstract

The moss genus *Mesochaete* Lindb. is represented in Victoria by a single species, *Mesochaete undulata* Lindb. In this paper the features of *M. undulata* are described, and its distribution and habitat are delineated. Its conservation status is assessed as endangered in Victoria but probably secure nationally. (*The Victorian Naturalist* 126 (5), 2009, 160–162)

Keywords: bryophyte, flora, moss, Rhizogoniaceae, Victoria

Introduction

The genus *Mesochaete* (Rhizogoniaceae) was erected by Sextus Lindberg in 1870 to include a single species, *Mesochaete undulata* Lindb. from Australia. The genus is distinct from others in the Rhizogoniaceae on account of having a thick border of elongate cells. *Rhizogonium taxiforme* Hampe was transferred to *Mesochaete* by Watts and Whitelegge in 1902 (Stone 1983). Both species are known only from Australia, but *Mesochaete undulata* Lindb. is the only species known from Victoria.

Description

Mesochaete undulata Lindb., *Oefv. K. Vet. Akad. Foerh.* 12: 70 (1870); *J. Linn. Soc. (Bot.)* 11: 463 (1870)

Dioecious. **Plants** large, mid to dark green, to about 60 mm long (rarely longer), usually growing in spreading clumps. **Stem** distinctly red to reddish black in the lower part, becoming paler towards the tip, contrasting strongly with the leaves; in cross-section with a cortex of two layers of distinctly smaller cells and a well-developed central strand. Axillary hairs usually present in leaf axils, 2–4 cells long. **Leaves** in four rows arranged all round the stem but flattened into one plane (at least when moist), often caducous (readily falling off) at the shoot tips; size very variable along the stem, up to about 5 mm long and 2.5 mm wide; asymmetric, with a thick and wide border of elongate cells armed with numerous multi-celled teeth, the border easily detached from the lamina. **Costa** (midrib) distinct, paler than the lamina, wide at the base but becoming narrower towards the leaf apex where it merges with the border to form a toothed apiculus. **Cells** of the lamina mostly roundly rectangular to hexagonal with very thick walls, mostly 10–15 µm wide and long throughout the leaf except at the very base next to the costa, where they are usually distinctly longer.

Fertile plants not known in Victoria; the following description is based on plants from New South Wales and Queensland. **Female branch** hidden among the leaves. **Bracts** much smaller than the leaves, with an oval base narrowing abruptly to a coarsely toothed apex. **Seta** to about 20 mm long, red to reddish brown. **Capsule** ± cylindrical, dark brown and deeply grooved when mature, to about 6 mm long, horizontal to erect, usually distinctly curved. **Peristome** single, comprising 16 long, narrow, incurved teeth. **Operculum** and **calyptra** not seen. **Spores** not seen. **Androecium** not seen. (Fig. 1)

Distribution and habitat

Mesochaete undulata is known from Victoria, New South Wales and Queensland, and also Lord Howe Island. Its range overlaps that of *M. taxiforme* between Eungella National Park (near Mackay) and the Atherton Tablelands (cf. Gilmore 2006). A report from South Australia noted by Scott and Stone (1975) is discounted, as there is no typical habitat there and no herbarium specimen exists.

In Victoria, *M. undulata* is known from only four localities: on the Genoa River close to the New South Wales border; in the Brodribb River region in a forestry block since clear-felled; at Mount Drummer, just west of Cann River; and at Double Creek near Mallacoota (Fig. 2). The first two localities are within State Forest available for timber harvesting. The fourth is within Croajingolong National Park in an interpretation area open to the public, where the most recent record was from a stagnant creek (Klazenaga, pers. comm.). The species is quite common in New South Wales and is known there from numerous localities along the eastern seaboard, as well as from a few widely scattered localities in Queensland, reaching as far north as Mount

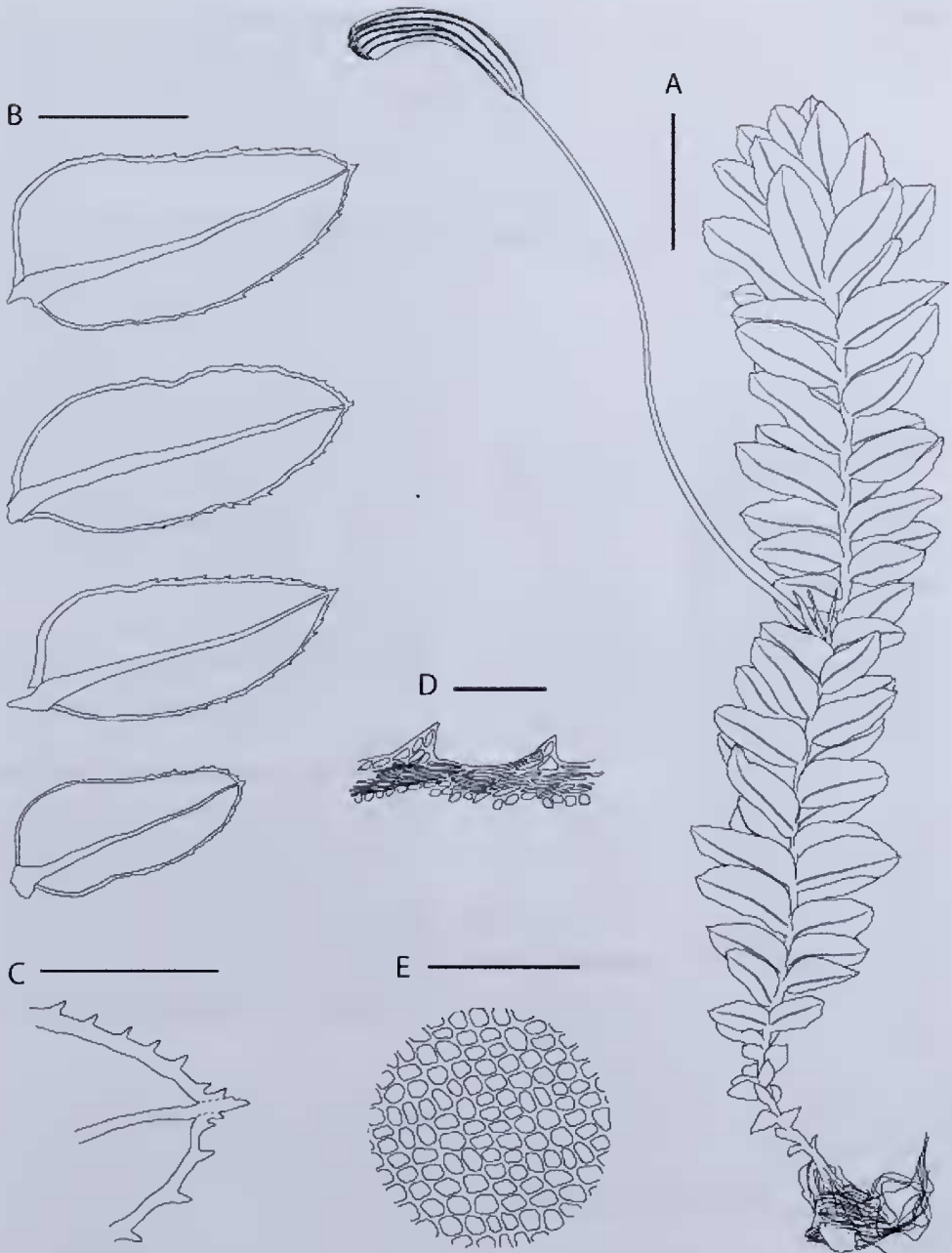


Fig. 1. *Mesochaete undulata*. A Moist plant with mature sporophyte. B Leaves. C Leaf apex. D Marginal teeth and border. E Cells in mid-leaf. (Scale bars: A = 5 mm, B = 2 mm, C = 1 mm, D, E = 100 μ m.)



Fig. 2. Known distribution of *Mesochaete undulata* in Victoria.

Haig on the Atherton Tablelands.

The typical habitat is damp soil on the edges of streams in wet forest and rainforest, but it sometimes grows on the bases of trees and tree-ferns and on rotting logs.

Similar species

Mesochaete taxiforme (Hampe) Watts & Whitel. differs most obviously in having larger leaves (to about 8 mm long) that are usually not overlapping, larger cells in the leaf lamina (typically 20–25 µm wide), and a stem cortex of about 4 layers of cells. It is a wholly tropical species and is not known from Victoria.

Cyathophorum bulbosum (Hedw.) Müll.Hal., a common species in temperate rainforest and riparian habitat in wet sclerophyll forest, occupies much the same habitat and is similar at first glance. However, it has neither a costa nor a border in the leaf, and it has a row of smaller, almost circular leaves on the ventral side of the stem. Furthermore, its capsules are borne on very short setas arising from the ventral side of the stem. Large specimens of *Rhizogonium distichum* can resemble *Mesochaete undulata* (and have sometimes been misidentified as such), but its leaves lack a border and the costa ends well before the apex.

Because of its habitat and form, *M. undulata* (and similar mosses) might also be mistaken for a small fern.

Conservation status

Under the IUCN's guidelines for assessing the conservation status of bryophytes (Hallingbeck *et al.* 2000), *Mesochaete undulata* must be classified as 'endangered' in Victoria (criteria B1, C2a and D) and 'lower risk (least concern)' nationally.

Representative specimens examined

VICTORIA — West of Cann River, Scott s.n., 14 Nov 1979, MUCV-4095 (MELU); Genoa River, Willis s.n., 23 Oct 1948, MEL-1000509; Double Creek Nature Trail, Klazenga 5220 & Cochrane, 1 Dec 1999, MEL-2075677; Brodribb Forest Block, Chesterfield 1794, 17 Jan 1986, MEL-1051786. **NEW SOUTH WALES** — Koorinderie Ridge, south of Lismore, C. Meagher s.n., 3 June 1997, herb. D.A. Meagher (MELU). **LORD HOWE ISLAND** — east side of Mt Lidgbird, Beaglehole 73537, 26 Nov 1962, MEL-1041435. **QUEENSLAND** — Eungella National Park, Stone 12447, 5 Jun 1975, MEL-2213311.

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